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EXAMINER

ALLEN, STEPHONE B

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,907

Applicant(s)

BENZ ET AL.

Examiner

Stephone B. Allen

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No.4,471,378 to Ng.

With direction to claims 1, 4 and 20, Ng discloses an intensified solid-state imaging sensor, comprising a photo cathode 16 having an input side for receiving light from an image, and an output side from which electrons produced by the photo cathode; a microchannel plate 20 having an input surface positioned adjacent to the output surface of the photo cathode, an output surface from which an increased number of electrons exit, and a plurality of channels formed between the input surface and the output surface; a first electrical connection for applying a first voltage between the photo cathode and the microchannel plate (col. 4, lines 17-19); a solid-state imaging device 52

Art Unit: 2878

(CCD) having an electron receiving surface, positioned adjacent to the output surface of the microchannel plate, for receiving the increased number of electrons output from the microchannel plate, and an output for outputting an intensified image signal; a second electrical connection for applying a second biasing voltage between the microchannel plate and the CCD (col. 4, lines 25-26); a vacuum body holding the photo cathode, microchannel plate and CCD together as a unit (col. 7, lines 3-13).

With direction to claim 2, Ng discloses wherein the first voltage is no more than 2000V (range between 1KV-2KV; col. 4, lines 19-21).

With direction to claim 3, Ng discloses wherein the second voltage is no less than 100V (300V; col. 4, lines 26).

With direction to claim 8, it appears that the microchannel plate and CCD are at least in part in physical contact.

Claims 1, 4 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,303,918 to Estrera et al. (Estrera).

With direction to claims 1, 4 and 20, Estrera discloses an intensified solid-state imaging sensor 10, comprising a photo cathode 22 having an input side for receiving light from an image, and an output side from which electrons produced by the photo cathode; a microchannel plate 24 having an input surface positioned adjacent to the output surface of the photo cathode, an output surface from which an increased number of electrons exit, and a plurality of channels formed between the input surface and the output surface; a first electrical connection for applying a first voltage between the photo

Art Unit: 2878

cathode and the microchannel plate 23; a solid-state imaging device 26 (CCD) having an electron receiving surface, positioned adjacent to the output surface of the microchannel plate, for receiving the increased number of electrons output from the microchannel plate, and an output for outputting an intensified image signal; a second electrical connection for applying a second biasing voltage between the microchannel plate and the CCD 25 (col. 3, line 66 - col. 5, line 28); due to the nature of image intensifiers it is inherent that the system is housed within a vacuum body.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7, 12-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng.

With direction to claims 5-7, Ng fails to disclose the claimed make-up of the CCD. However, the exact make-up of the CCD would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

With direction to claims 12-19, Ng fails to disclose the claimed structural limitations of the microchannel plate. However, the exact make-up of the microchannel plate would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

Art Unit: 2878

With direction to claim 21, Ng discloses an intensified solid-state imaging sensor, comprising a photo cathode 16 to convert light from an image into electrons; an electron multiplying device (MCP) 20 connected to an output surface of the photo cathode, the MCP being adapted to receive electrons from the photo cathode, increase the number of electrons received, and output the increased number of electrons; a solid-state imaging device 52 (CCD); an electrical circuit connected between the photo cathode and CCD to apply a voltage therebetween; a body in which the photo cathode, MCP and CCD are held in at least a partial vacuum (col. 7, lines 3-13).

Ng fails to disclose the claimed make-up of the solid-state image sensor. However, the exact make-up of the sensor would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

Claims 5-7, 12-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Estrera.

With direction to claims 5-7, Estrera fails to disclose the claimed make-up of the CCD. However, the exact make-up of the CCD would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

With direction to claims 12-19, Estrera fails to disclose the claimed structural limitations of the microchannel plate. However, the exact make-up of the microchannel plate would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

With direction to claim 21, Estrera discloses an intensified solid-state imaging sensor, comprising a photo cathode 22 to convert light from an image into electrons; an electron multiplying device (MCP) 24 connected to an output surface of the photo cathode, the MCP being adapted to receive electrons from the photo cathode, increase the number of electrons received, and output the increased number of electrons; a solid-state imaging device 26 (CCD); an electrical circuit connected between the photo cathode and CCD to apply a voltage therebetween; a body in which the photo cathode, MCP and CCD are held in at least a partial vacuum (23, 24).

Estrera fails to disclose the claimed make-up of the solid-state image sensor. However, the exact make-up of the sensor would have been an obvious design modification for one of ordinary skill in the art, since they are functionally equivalent.

Allowable Subject Matter

Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The feature considered allowable is the insulating layer that separates the output surface of the MCP and receiving surface of the CCD, the prior art fails to show such.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephone B. Allen whose telephone number is (703) 308-4828. The examiner can normally be reached on 9:00-17:00 Mon-Fri.

Art Unit: 2878

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 or 7724 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read "Stephone B. Allen". The signature is fluid and cursive, with the first name "Stephone" and last name "Allen" clearly distinguishable.

Stephone B. Allen
Primary Examiner
Art Unit 2878

sba
March 10, 2003